

Schnelle IR-Lumineszenzdiode (950 nm) im 3 mm Radial-Gehäuse High-Speed Infrared Emitter (950 nm) in 3 mm Radial Package

SFH 4301



Wesentliche Merkmale

- Hohe Pulsleistung und hoher Gesamtstrahlungsfluß Φ_e
- Sehr kurze Schaltzeiten (10 ns)
- Sehr hohe Langzeitstabilität
- Hohe Zuverlässigkeit

Features

- High pulse power and high radiant flux Φ_e
- Very short switching times (10 ns)
- Very high long-time stability
- High reliability

Anwendungen

- Schnelle Datenübertragung mit Übertragungsraten bis 100 Mbaud (IR Tastatur, Joystick, Multimedia)
- Analoge und digitale Hi-Fi Audio- und Videosignalübertragung
- Batteriebetriebene Geräte (geringe Stromaufnahme)
- Anwendungen mit hohen Zuverlässigkeitsansprüchen bzw. erhöhten Anforderungen
- Alarm- und Sicherungssysteme
- IR Freiraumübertragung

Applications

- High data transmission rate up to 100 Mbaud (IR keyboard, Joystick, Multimedia)
- Analog and digital Hi-Fi audio and video signal transmission
- Low power consumption (battery) equipment
- Suitable for professional and high-reliability applications
- Alarm and safety equipment
- IR free air transmission

Typ Type	Bestellnummer Ordering Code	Gehäuse Package
SFH 4301	Q62702-P5166	3-mm-LED-Gehäuse (T1), schwarz eingefärbt, Anschlüsse im 2.54-mm-Raster ($\frac{1}{10}$ "), Kathodenkennung: längerer Anschluß 3 mm LED package (T1), black-colored epoxy resin, solder tabs lead spacing 2.54 mm ($\frac{1}{10}$ "), cathode marking: long lead

Grenzwerte ($T_A = 25\text{ °C}$)**Maximum Ratings**

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Betriebs- und Lagertemperatur Operating and storage temperature range	$T_{op}; T_{stg}$	- 40 ... + 100	°C
Sperrspannung Reverse voltage	V_R	3	V
Durchlaßstrom Forward current	I_F (DC)	100	mA
Stoßstrom Surge current $t_p = 10\text{ }\mu\text{s}, D = 0$	I_{FSM}	2.2	A
Verlustleistung Power dissipation	P_{tot}	180	mW
Wärmewiderstand Sperrschicht - Umgebung, freie Beinchenlänge max. 10 mm Thermal resistance junction - ambient, lead length between package bottom and PCB max. 10 mm	R_{thJA}	375	K/W

Kennwerte ($T_A = 25\text{ °C}$)**Characteristics**

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Wellenlänge der Strahlung Wavelength of peak emission $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	λ_{peak}	950	nm
Spektrale Bandbreite bei 50% von I_{max} Spectral bandwidth at 50% of I_{max} $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	$\Delta\lambda$	40	nm
Abstrahlwinkel Half angle	φ	± 10	Grad deg.
Aktive Chipfläche Active chip area	A	0.09	mm ²
Abmessungen der aktiven Chipfläche Dimension of the active chip area	$L \times B$ $L \times W$	0.3×0.3	mm
Schaltzeiten, I_e von 10% auf 90% und von 90% auf 10% Switching times, I_e from 10% to 90% and from 90% to 10%, $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$, $R_L = 50\ \Omega$	t_r , t_f	10	ns
Kapazität Capacitance $V_R = 0\text{ V}$, $f = 1\text{ MHz}$	C_o	35	pF
Durchlaßspannung Forward voltage $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$ $I_F = 1\text{ A}$, $t_p = 100\ \mu\text{s}$	V_F V_F	1.5 (≤ 1.8) 3.2 (≤ 4.0)	V V
Sperrstrom Reverse current $V_R = 3\text{ V}$	I_R	0.01 (≤ 10)	μA
Gesamtstrahlungsfluß Total radiant flux $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	Φ_e	32	mW
Temperaturkoeffizient von I_e bzw. Φ_e Temperature coefficient of I_e or Φ_e $I_F = 100\text{ mA}$	TC_1	- 0.44	%/K

Kennwerte ($T_A = 25\text{ °C}$) (cont'd)**Characteristics**

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Temperaturkoeffizient von V_F Temperature coefficient of V_F $I_F = 100\text{ mA}$	TC_V	- 1.5	mV/K
Temperaturkoeffizient von λ Temperature coefficient of λ $I_F = 100\text{ mA}$	TC_λ	+ 0.2	nm/K

Strahlstärke I_e in Achsrichtunggemessen bei einem Raumwinkel von $\Omega = 0.01\text{ sr}$ **Radiant Intensity I_e in Axial Direction**measured at a solid angle of $\Omega = 0.01\text{ sr}$

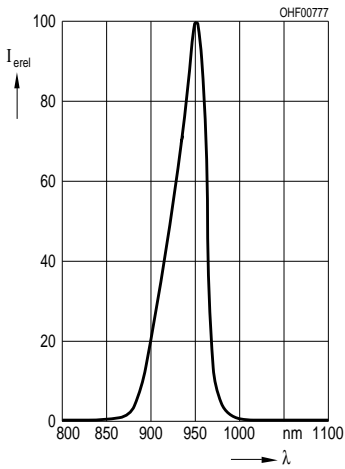
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Strahlstärke Radiant intensity $I_F = 100\text{ mA}$, $t_p = 20\text{ ms}$	$I_{e\text{ min}}$ $I_{e\text{ typ}}$	16 60	mW/sr mW/sr
Strahlstärke Radiant intensity $I_F = 1\text{ A}$, $t_p = 100\text{ }\mu\text{s}$	$I_{e\text{ typ}}$	400	mW/sr

Lötbedingungen**Soldering Conditions**

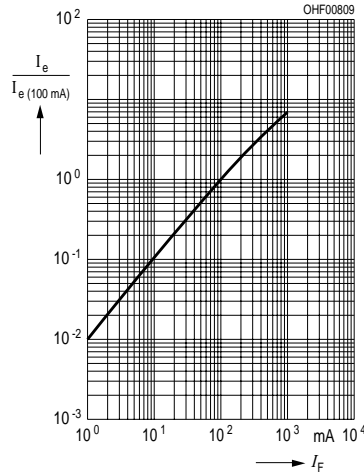
Tauch-, Schwall- und Schleplötung Dip, Wave and Drag Soldering			Kolbenlötung (mit 1,5-mm-Kolbenspitze) Iron Soldering (with 1.5-mm-bit)		
Lötbad- temperatur	Maximal zulässige Lötzeit	Abstand Lötstelle – Gehäuse	Temperatur des Kolbens	Maximale zulässige Lötzeit	Abstand Lötstelle – Gehäuse
Temperature of the Soldering Bath	Max. Perm. Soldering Time	Distance between Solder Joint and Case	Temperature of the Solder- ing Iron	Max. Permis- sible Solder- ing Time	Distance between Solder Joint and Case
260 °C	10 s	$\geq 1.5\text{ mm}$	300 °C	3 s	$\geq 1.5\text{ mm}$

Relative Spectral Emission

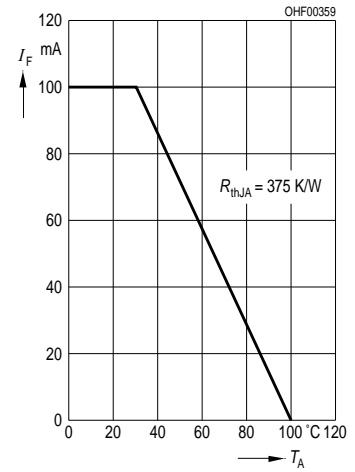
$I_{\text{erel}} = f(\lambda)$



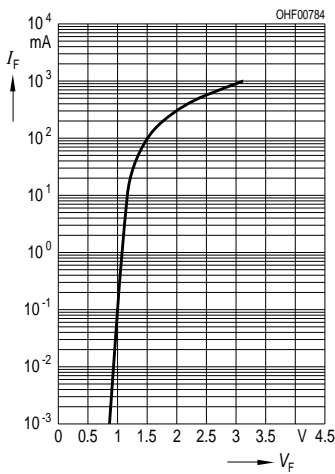
Radiant Intensity $I_e/I_e(100 \text{ mA}) = f(I_F)$
Single pulse, $t_p = 20 \mu\text{s}$



Max. Permissible Forward Current $I_F = f(T_A)$

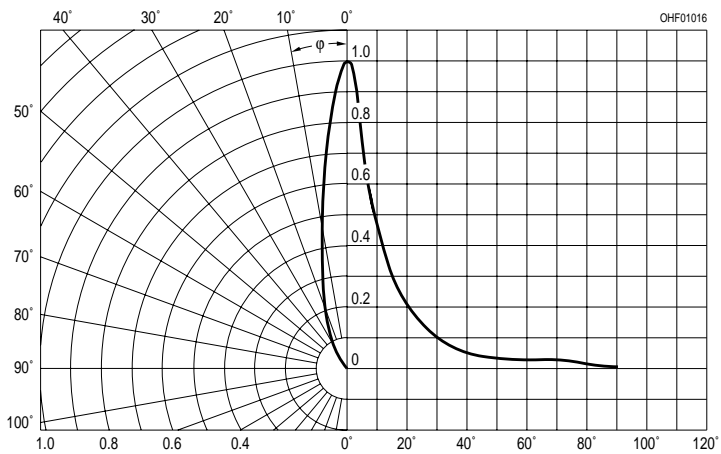


Forward Current $I_F = f(V_F)$
single pulse, $t_p = 20 \mu\text{s}$

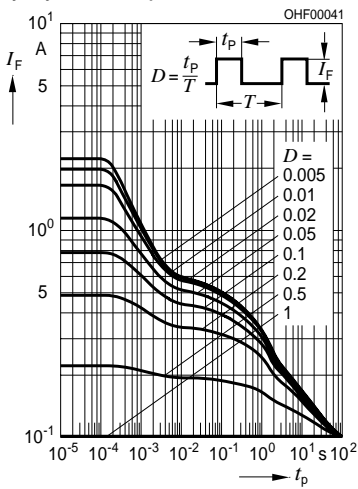


Radiation Characteristic

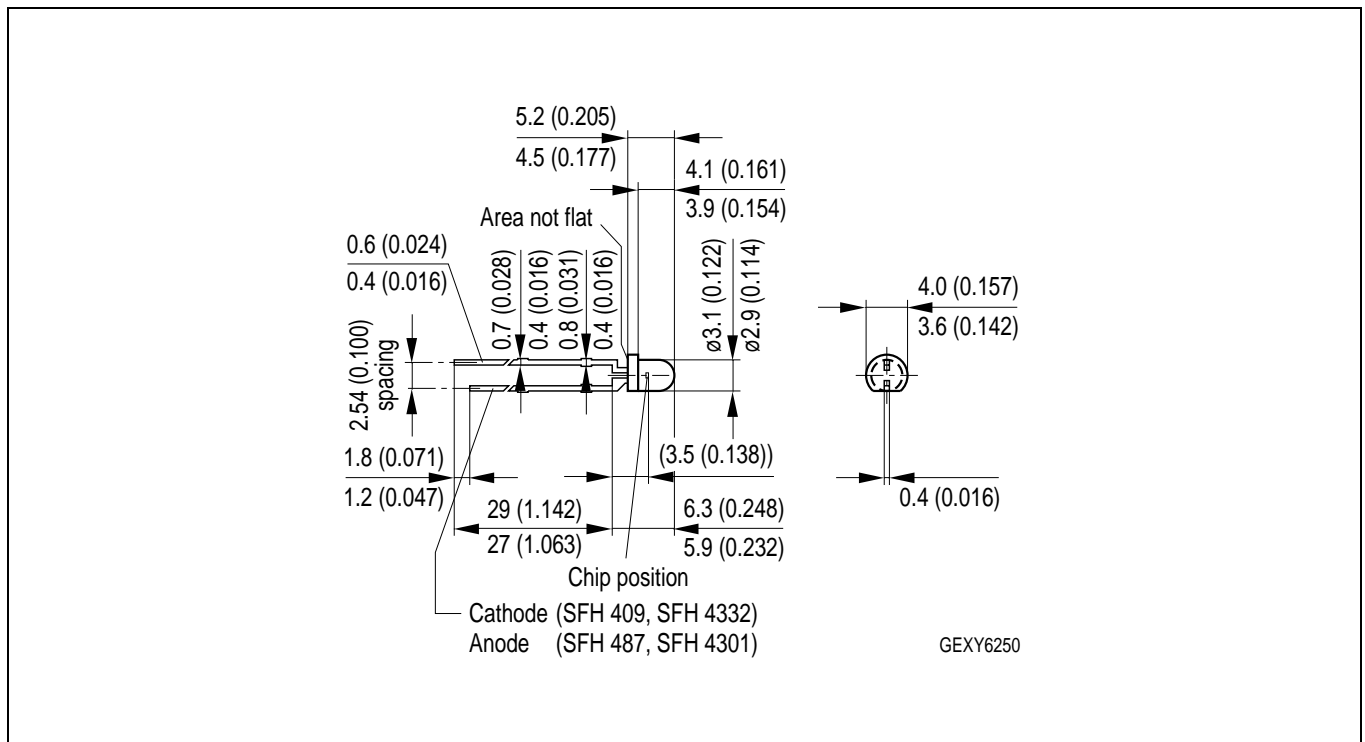
$I_{\text{erel}} = f(\phi)$



Permissible Pulse Handling Capability $I_F = f(\tau)$, $T_A = 25 \text{ }^\circ\text{C}$,
duty cycle $D = \text{parameter}$



Maßzeichnung Package Outlines



Published by OSRAM Opto Semiconductors GmbH & Co. OHG
Wernerwerkstrasse 2, D-93049 Regensburg

© All Rights Reserved.

Attention please!

The information describes the type of component and shall not be considered as assured characteristics. Terms of delivery and rights to change design reserved. Due to technical requirements components may contain dangerous substances. For information on the types in question please contact our Sales Organization.

Packing

Please use the recycling operators known to you. We can also help you – get in touch with your nearest sales office. By agreement we will take packing material back, if it is sorted. You must bear the costs of transport. For packing material that is returned to us unsorted or which we are not obliged to accept, we shall have to invoice you for any costs incurred.

Components used in life-support devices or systems must be expressly authorized for such purpose! Critical components¹, may only be used in life-support devices or systems² with the express written approval of OSRAM OS.

¹ A critical component is a component used in a life-support device or system whose failure can reasonably be expected to cause the failure of that life-support device or system, or to affect its safety or effectiveness of that device or system.

² Life support devices or systems are intended (a) to be implanted in the human body, or (b) to support and/or maintain and sustain human life. If they fail, it is reasonable to assume that the health of the user may be endangered.

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- ⊖ [View SFH 4301 on WIN SOURCE](#)
- ⊖ [OSRAM Opto Semiconductors Inc. Information](#)

Optimize Your Supply Chain with WIN SOURCE Solutions

- ✓ Global Sourcing Solution
- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management